



भारतीय आयुर्विज्ञान अनुसंधान परिषद  
स्वास्थ्य अनुसंधान विभाग, स्वास्थ्य और परिवार  
कल्याण मंत्रालय, भारत सरकार

Indian Council of Medical Research  
Department of Health Research, Ministry of Health  
and Family Welfare, Government of India

Date: 01/06/2021

## Call for Concept Proposals on COVID-19

### Background

The COVID-19 pandemic has led to major loss of lives and livelihood. Despite intense efforts of the global scientific community, there is scanty knowledge related to the functional aspects of the virus, its transmission dynamics, immunological response to natural infection and vaccines. In addition, it is important to understand the drivers of vaccine hesitancy and reduced uptake, clinical spectrum of the disease and its progression. Also there is a need to formulate the clinical management protocols in line with the emerging global evidence.

ICMR had initiated research on COVID-19 in Task Force and intramural mode. These projects were formulated to address the most pressing research questions in the following domains:

- Clinical Research
- Diagnostics & Biomarkers
- Epidemiology & Surveillance
- Operations Research

ICMR now invites independent researchers all across the country to contribute to the scientific knowledge related to COVID-19 by submitting their innovative research ideas as brief concept proposals in the following identified priority areas:

### A. Epidemiological and surveillance studies:

1. Assess the impact on development of variants between those who are vaccinated and unvaccinated individuals in a limited geographic area
2. Seroprevalence studies to determine susceptibility of individuals to SARS-CoV-2, as well as follow up seroprevalence studies at sites covered earlier to measure the impact of vaccination/herd immunity level
3. Surveillance of COVID-19 reinfections in previously infected individuals with same/different SARS-CoV-2 strains
4. Effectiveness of vaccines in reducing transmission
5. Develop an appropriate model for surveillance of COVID-19 in schools & colleges

### B. Laboratory studies:

6. Identification of specific functions of SARS-CoV-2 proteins on the following:
  - a. host genes up / down regulation

- b. excessive cytokine release
  - c. proof-reading function of RdRP
  - d. transcription to replication switch
  - e. involvement of miRNAs
7. Generating infectious cDNA for SARS-CoV-2 RNA and performing site directed mutagenesis to identify virulence and transmission factors
  8. To develop appropriate laboratory assays and algorithms to identify variant strains of SARS-CoV-2
  9. Studies to determine transmissibility and disease severity with variant strains of SARS-CoV-2
  10. Whether infection with CoV2 interferes / suppress influenza infections: in vitro interference in replication: CoV2 followed by influenza virus (and vice versa) could be tested in suitable cell line(s) that are susceptible to both the viruses
  11. Studies on ACE-2 receptors in Indian population and their interaction with SARS-COV2
  12. Assessment of transplacental and breast milk antibodies
  13. Development and Reproductive Toxicity (DART) studies for COVID-19 vaccines

### **C. Immunological aspect and vaccine efficacy research:**

14. Studies on immunological response to the COVID-19 vaccines in different (in terms of ethnic / socio-economic / gender) populations / population sub-groups in the country
15. Duration of protection offered by COVID-19 vaccines, and factors affecting it (age, sex, comorbid status, ethnicity). Vaccinated cohorts may be followed for up to 2 years
16. Studies on correlates of immune protection (in vaccinated as well as naturally infected individuals)
17. Assessment of antibody and antigen-specific responses in SARS-CoV-2 infected and naïve individuals immunized with COVID-19 vaccines
18. Efficacy of COVID-19 vaccines in previously infected individuals, and potential scope of single dose vaccination in such individuals to boost immune response
19. Evaluating safety of COVID-19 vaccines in individuals with autoimmune disorders
20. Evaluating COVID-19 vaccine efficacy in PLHIV, and determining the need of a CD4 T+ cell cutoff for vaccination in such individuals
21. Determining the need and timing of a third COVID-19 vaccine booster dose by measuring antibody titres and their persistence in vaccinees after the second dose of the vaccine
22. Measurement of pre-existing adenovirus antibodies in those who have received Covishield vaccine: whether this would affect the timing and efficacy of subsequent boosters
23. Interchangeability of COVID-19 vaccines
24. Whether measurement of neutralization titres in COVID-19 vaccinated individuals and individuals with natural infection would be lower against novel strains and variants of concern
25. Studying immune escape of variant SARS-CoV-2 strains in vaccinated individuals
26. Surveillance of post-vaccination breakthrough COVID-19 infections by a follow up of at least 2 years
27. Studies to identify non-responders to COVID-19 vaccines (especially in old age, Diabetes, CKD, HIV, malignancies), and assess strategies to overcome non-response for use in public health practice

28. Studies to determine immune status of re-infected individuals, as well as individuals co-infected with Influenza virus and SARS-CoV-2
29. Cross protection offered by other circulating human Coronaviruses against SARS-CoV-2. *In vitro* neutralization studies may be planned to check the cross reactivities of antibodies
30. Characterization of immune response in naturally infected and vaccinated individuals

#### **D. Clinical research:**

31. Changes in COVID-19 mortality/ severity/ hospitalization after vaccination
32. Studies on MIS-C in the pediatric group
33. Research on Post COVID syndrome/Long COVID, and assessing differences between asymptomatic and symptomatic cases, if any
34. Effectiveness of syndromic management of COVID-19
35. Correlation between variants and clinical severity
36. Determinants of severity and death among young adults
37. Clinical trials of repurposed and new drugs
38. Studies to assess safety of COVID-19 vaccines in pregnant and breastfeeding women in programmatic mode

#### **E. Socio-behavioral research:**

39. Drivers of vaccine hesitancy across India (social / system related / cultural determinants of uptake/ resistance / hesitancy with regards to vaccine uptake), in different geographical locations
40. Drivers of reduced vaccine uptake among different groups of people (groups prioritized for COVID-19 vaccination/ like migrants, sexual minorities, tribal populations, urban poor), and ways to overcome them
41. Adherence to COVID appropriate behavior in individuals and communities post immunization with COVID-19 vaccines
42. Studies to ascertain community level heterogeneities in vaccine uptake and protective immunity, and how this affects herd immunity in addition to contributing to the sustenance of the pandemic (in small / vulnerable / marginalized groups in a community)
43. Interventional research in sites where rise in COVID-19 transmission has been frequently observed, and develop demonstration projects through involving and enabling local communities in addition to other stakeholders who would lead the process of implementation of these interventions
44. Studies on social and health system determinants of response and non-response to COVID-19 vaccine at individual and group level

#### **F. Policy studies:**

45. Develop a model for service delivery using public private partnership in vaccine rollout using various approaches

46. Costing and health economics studies around different COVID-19 vaccines, including economic modeling
47. Impact of COVID-19 vaccination on other infectious respiratory diseases (e.g. Influenza), whether their incidence is rising or declining
48. Overall impact of COVID-19 pandemic on other respiratory illnesses, for example, how hampered access to DOTS during the pandemic has affected Tuberculosis patients
49. Experience sharing among different countries post COVID-19 vaccine rollout
50. Studies to determine impact of COVID-19 vaccination in different work settings, especially health care settings – in terms of protective guidelines, quarantine rules and other work-related conditions
51. Studies to determine health system implications (for other core health system services) of ongoing COVID-19 vaccination and COVID control activities, and its gendered dimensions – given the burden and helplessness of frontline workers who are mainly women
52. Studies to determine practice level changes emerging from the COVID experience – for example the feasibility of telemedicine and how these opportunities / challenges can be built upon in the future for TB, Non-communicable diseases and other diseases.
53. Strategies for expansion of COVID-19 vaccination coverage in rural India
54. School reopening strategies
55. Behavioral/cognitive/nutritional wellbeing of children during the COVID-19 pandemic.

All concept proposals should be submitted online at <https://epms.icmr.org.in> as a brief 3-4 page concept note on/before **30<sup>th</sup> June 2021, 5:00 PM**. Format of submitting concept proposals can be downloaded from: [https://epms.icmr.org.in/extramuralstaticweb/pdf/Adhoc/concept\\_proposal\\_format.pdf](https://epms.icmr.org.in/extramuralstaticweb/pdf/Adhoc/concept_proposal_format.pdf)

The online portal will be closed thereafter.

All concept proposals will be screened at ICMR. If approved by the screening committee, selected investigators will be requested to submit full proposals.

The full proposals will be thoroughly reviewed by Project Review Committees and decision will be made accordingly.

### Important Note:

1. Open the ICMR Electronics Project Management System (e-PMS) portal  
<https://epms.icmr.org.in>
2. Project proposal submission is three steps process in e-PMS.
  - Step 1 : PI Registration/Login
  - Step 2: Verify Email Id and Complete/Update PI Profile
  - Step 3 : Apply for Grant through submission of Ad-hoc proposal
3. Click on "**LOGIN**" and select "**Register**" for new registration OR else if already registered provide details to login and enter into e-PMS portal.
4. After registration in the portal, login in the portal. Verify your registered email and complete the PI profile. IP profile includes Personal detail such as Salute, Name, DOB as per 10<sup>th</sup> certificate, Details of 10<sup>th</sup> (Board name, roll number, Year of passing), Attachment (10<sup>th</sup> certificate/mark sheet), Gender (Male/Female), Category (GEN, OBC, SC, ST), State, District, Institute Name (if name doesn't exist in the drop down list then there is an option to add the new institute also), Designation, Nature of Employment, Department, Broad Area of Research, Subject Area.
5. After completing mandatory section of PI Profile, click on "**Submit Concept Proposal**" under "**Proposal Submission**" menu. Click on "**Apply**" at action column.
6. The user manual of e-PMS (under Guidelines-> e-PMS menu) available at <https://epms.icmr.org.in> Before proceed to submission the proposal, it is suggested to read user manual and guidelines; and make ready all relevant information, documents and research plan.
7. Contact to [po.epms@icmr.gov.in](mailto:po.epms@icmr.gov.in) for any technical issue or query.